Application No. 10/074,600
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TC Art Unit: 2157
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REMARKS

In response to an Office Action mailed on October 3, 2005, Applicant respectfully requests that the Application be reconsidered in light of the following Remarks.

The Applicant appreciates the time and courtesy extended by the Examiner during a telephonic interview with the undersigned attorney on November 30, 2005. Art (US Pat. No. 6,331,985 to Coden ("Coden")) cited in the above-identified Office Action was discussed.

The Examiner rejected claims 1-16 under 35 U.S.C. 102(e) as being anticipated by Coden.

The present Application discloses and claims a ring data communication network that includes at least two bridges and an end station coupled to the first bridge. The ring is configured for spatial reuse, i.e., the ring supports unicast transmissions between two distinct points on the ring, rather than requiring each transmission to circulate around the entire ring. Spatial reuse permits remaining portions of the ring to be used for other transmissions, resulting in generally higher network throughput.

The end station can be, for example, an internetworking bridge, a router or a similar network device on another ring. In this example, the first bridge bridges the two rings.

If the second bridge receives a packet destined for the end station before the second bridge learns which bridge the end station is coupled to, the second bridge forwards the packet as a broadcast transmission on the ring. However, broadcast transmissions must circulate around the entire ring. Thus, broadcast transmissions reduce the degree to which spatial reuse can be exploited on the ring.

As packets are transmitted along the ring by the bridges, the second bridge learns an association between the first bridge and the end station. That is, the second bridge learns that the end station is coupled to the first bridge. After learning this association, when the second bridge receives a packet destined for the end station, the second bridge forwards the packet as a unicast transmission to the first bridge on the ring. Unicast transmission facilitate spatial reuse on the ring.

Claim 1 recites, *inter alia*, first and second bridges coupled to a ring, the first bridge also being coupled to an end station, wherein the second bridge is operative (1) to learn an association between the first bridge and the end station, and (2) upon receiving a packet destined for the end

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station: (i) to forward the received packet as a broadcast transmission on the ring in the event that the association between the first bridge and the end station has not yet been learned, and (ii) to forward the received packet as a unicast transmission to the first bridge on the ring in the event that the association between the first bridge and the end station has been learned. (Emphasis added.) The Applicant respectfully submits that Coden does not disclose or fairly suggest the claimed invention, for at least the following reasons.

Coden does not disclose a second bridge that learns an association between a first bridge and an end station. (Based on the above-identified Office Action, the Applicant assumes the Examiner analogizes the recited "end station" to Coden's "network device" and the recited "bridge" to Coden's "switch.") Coden discloses a switch that learns which network devices are associated with each port of the switch. (See, for example: Abstract; col. 4, lines 48-58; col. 5, line 65 to col. 6, line 2; and col. 6, lines 10-20; and col. 6, line 40-45.) When Coden's switch receives a packet, the switch observes the source address of the packet and associates that source address with the port over which the packet was received. Thus, over time, the switch learns which devices are reachable over which ports of the switch. After learning this device-port association, if the switch receives a packet destined to a known device (i.e., the switch receives a packet addressed to a known destination address), the switch sends the packet over the associated port.

However, Coden's switch does not learn an association between a device and another switch, as recited in claim 1. Coden's switch simply learns over which port to send a packet. In a ring network with several switches, when Coden's switch receives a packet destined to a known device, the switch forwards the packet over either a local port (i.e., a port connected to a LAN that includes the destination device) or over a ring port (i.e., a port connected via a network link to another ring switch). In either case, Coden's switch knows only over which port to send the packet. Coden's switch has no information about which other switch in the ring should receive the packet (if the packet is sent over a ring port), because Coden's switch does not "learn an association between the first [i.e., another] bridge and the end station," as recited in claim 1.

Coden's switch simply forwards the packet along the ring. The packet is forwarded around the ring by successive switches until the packet eventually reaches a switch that the destination device is connected to. However, this "ultimate" switch is not known, by any of the other switches,

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to be connected to the destination device. That is, no other switch learns of an association between the ultimate switch and the destination device.

Furthermore, Coden's teachings, relative to decisions made by Coden's switch, are not applicable to decisions made by the present Application's second bridge. Coden's switch is in a different topological location in a ring network than the recited second bridge. A destination device can be connected to Coden's switch. In contrast, claim 1 recites a second bridge that is never coupled to the recited end station. Thus, Coden's switch makes different kinds of forwarding decisions than the recited second bridge.

Coden discloses packet forwarding decisions made by a switch. These decisions are made based on whether or not the destination device is connected to the switch making the decision. If the destination device is connected to the switch making the decision, the switch forwards the packet, via a local port, over a LAN, to the destination device. On the other hand, if the destination device is not connected to the switch, the switch forwards the packet, via a ring port, to another switch along the ring.

In contrast, claim 1 recites decisions made by a bridge (the "second bridge") that is never coupled to the recited end station. The second bridge's decision is not based on whether or not the end station is coupled to the second bridge, because the end station is never coupled to the second bridge. The second bridge's decision is based on whether or not the second bridge has learned an association between the first bridge and the end station.

In addition, Coden's switch decides whether to forward the packet to: (a) a locally connected device (via a local port) or (b) over the ring. In contrast, the recited second bridge always forwards the packet over the ring to another switch. The second switch decides whether to forward the packet as a broadcast transmission or a unicast transmission. Coden's switch makes no such decision.

The Examiner asserted that Coden (in col. 3, line 59 to col. 4, line 8) discloses sending a packet as a unicast message when the destination address is found in a table within a switch. The Applicant respectfully submits that this assertion is not supported by the Coden disclosure. Coden discloses, "When a match is found for the destination address in the tables for one of the ports, the packet is switched to and sent out that port." Nowhere does Coden disclose or suggest sending the

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packet as a unicast message to another switch, in response to finding a match between the destination address and a table entry. Coden simply discloses transmitting the packet over the associated port, rather than over all the ports (except the port over which the packet was received) of the switch.

Thus, Coden does not disclose or suggest a second bridge that learns an association between a first bridge and an end station, as recited in claim 1. Further, Coden does not disclose or suggest a second bridge that forwards a received packet as either a broadcast transmission on the ring or a unicast transmission to the first bridge on the ring, based on whether the association between the first bridge and the end station has been learned. In addition, Coden's switch decides which port (local port or ring port) to use to forward the packet, whereas in the claimed invention, the decision is not which port to use to forward the packet. In the claimed invention, the switch decides whether to forward the packet as a broadcast transmission or a unicast transmission. In both cases, the second bridge forwards the packet on the ring. For at least these reasons, claim 1 is believed to be allowable.

Claims 2-8 depend directly or indirectly from claim 1. These dependent claims are, therefore, believed to be allowable, for at least the reasons given above with respect to claim 1.

The Examiner rejected claim 9 for essentially the same reason as claim 1. Claim 9 is believed to be allowable, for at least the reasons given above with respect to claim 1. Claims 10-16 depend directly or indirectly from claim 9. These dependent claims are, therefore, believed to be allowable, for at least the reasons given above.

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For all the foregoing reasons, and due to the inapplicability of the art of record to the claimed invention, it is respectfully submitted that the present Application is in a condition for allowance, and such action is earnestly solicited. Alternatively, the Applicant respectfully requests that the finality of the above-identified Office Action be withdrawn. The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present Application.

Respectfully submitted,

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